STATE OF SOUTH CAROLINA

BEFORE THE PUBLIC SERVICE COMMISSION

DOCKET NO. 2020-125-E

IN THE MATTER OF:	)	
	)	
Application of Dominion Energy South Carolina, Incorporated For Adjustments in the Company's Electric Rate Schedules and Tariffs	)	**SURREBUTTAL TESTIMONY OF EDWARD G. (TED) McGAVRAN III, P.E.**

ON BEHALF OF THE

SOUTH CAROLINA ENERGY USERS COMMITTEE

AND

SOUTH CAROLINA DEPARTMENT OF CONSUMER AFFAIRS

December 17, 2020

Q. PLEASE STATE YOUR NAME, POSITION, AND BUSINESS ADDRESS FOR THE RECORD.

A. My name is Edward G. (Ted) McGavran III, P.E., 220 Cape August Place, Belmont, North Carolina 28012.

Q. ON WHOSE BEHALF ARE YOU PRESENTING TESTIMONY IN THIS PROCEEDING?

A. I am testifying on behalf of South Carolina Energy Users Committee ("SCEUC") and the South Carolina Department of Consumer Affairs ("DCA").

Q. MR. McGAVRAN, DID YOU SUBMIT DIRECT TESTIMONY IN THIS DOCKET?

A. Yes.

Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?

A. I respond to the testimony of DESC witnesses R. Scott Parker and David A. Whiteley.

Q. DO YOU AGREE WITH MR. PARKER AND MR. WHITELY THAT THE TRANSMISSION EXPANSION PROJECTS ARE NOW NECESSARY TO MEET CAPACITY NEEDS?

A. No. The question that arises in this discussion is what would be an optimal transmission line/system utilization factor that would provide benefit to the ratepayer to justify a system upgrade or on this case an entire system expansion and upgrade. To answer that question, we need to explore a few things as follows:

First, any transmission line or associated network has various components that must be adequate to deliver power reliably to the customer wherever he is on the system. That would include the transmission line, substation bus capacity, and transformer capacity, all of which need to be adequately sized to deliver power. In this case, the sizing of all these components was increased so that the transmission lines and substations constructed and upgraded throughout the state could accommodate power flow from the VCSN plant expansion. An example is the new 230 kV transmission substation at the plant which was constructed to accommodate the gateways from the plants. This construction required a completely new green field footprint to accommodate the switchyard and expanded plant construction.

Second, geographical configuration of the power generation sites can and do drive the configuration, construction, and capacity requirements of any bulk system and can be a determining factor in optimal line utilization. In this case, the overriding assumption was the installation of the VCSN upgrade which would be by far the largest power generation site on the system for the foreseeable future. The entire transmission system expansion rested on the assumption that nuclear plants would be constructed and placed in service.

Third and perhaps most important, transmission planning was done only in the context of the SCE&G and Santee Cooper system in the South Carolina. While interconnections between utilities such as Duke and Southern Company were considered, they were not drivers of the planning. In other regions of the country, we see ISOs and RTOs that drive transmission and generation planning and deployment on a much more regional and

interstate basis than what was done here. In the case of an RTO such as PJM, assets would be built in a competitive environment where Local Marginal Pricing in real time would be an economic driver and signal for building and planning these assets. We see that all the time with both transmission and generation projects in RTOs, as well as with renewable generation projects. Competitive pricing shifts the risk from the ratepayer to the utility or asset owner. Also, RTOs have market monitors that act as independent "referees" so to speak that examine costs, assumptions, and operational practices to balance the optimal asset deployments, power pricing assumptions and models, and reliability needs on a regional basis. Those regions can be very extensive as we see from RTO footprints such as PJM, MISO, and ERCOT. All of that tends to have a moderating influence on large projects such as this transmission system expansion and the VCSN expansion which was not constructed and in service at the time the planning was done.

Q. DO YOU AGREE WITH MR. PARKER AND MR. WHITELEY WHO SUGGEST THAT BECAUSE THE TRANSMISSION PLANNING PROCESS IN CONNECTION WITH THE VCSN EXPANSION WAS FULLY COMPLIANT WITH NERC REQUIREMENTS, DESC MUST BE AWARDED RECOVERY OF THE COST OF THE TRANSMISSION EXPANSION IN RATES?

A. No. On the main page of its website, NERC characterizes its vision as follows: "The vision for the Electric Reliability Organization Enterprise which is composed of NERC and the six Regional Entities is a highly reliable and secure North American bulk power system." https://www.nerc.com/Pages/default.aspx. Accordingly, NERC does not get into economic evaluation of projects nor does it have any say in how a utility meets its

reliability requirements. It merely sets a standard or standards that should be met to reach and maintain those requirements. It is up to the utilities and/or the RTO/ISO to address the most economically prudent manner to get to those requirements. It is up to this Commission to determine what transmission costs are used and useful and should be borne by the ratepayers. The Commission is not obligated to require ratepayers to pay for excessive cost, just because the transmission assets comply with NERC standards.

Q. MR. PARKER DISCUSSES THE BENEFIT OF THE TRANSMISISON EXPANSION TO DESC RATEPAYERS. IS HE CORRECT?

A. The benefit is minimal. Unlike Mr. Whiteley, Mr. Parker admits that the transmission expansion was undertaken as necessary to make the VC Summer Nuclear project viable on a system wide basis. Parker Rebuttal page 3, l. 6 - page 4, l. 2. Mr. Whiteley's testimony suggests that the transmission expansion was undertaken to be a bulk power transfer, with the transmission of the 2200 MW of electricity to have been generated by the VC Summer nuclear plants being an incidental benefit. Whiteley Rebuttal at p. 24, ll. 2-3. Mr. Parker repeats the north to south transmission narrative which I agree with. The diagram he provides on page 5 of his testimony shows the generation and transmission system in support of that narrative. Mr. Parker also discusses the load flow issues and interconnection with other systems as now being considered drivers of this transmission expansion. He also says the expansion is "useful". However, the question here is not whether the transmission expansion has usefulness now that it is in service. The issue here is whether DESC's ratepayers should be expected to pay for the cost of the transmission expansion in light of the fact that the VC Summer nuclear plants were not constructed, and the transmission

facilities are not needed for the transmission of the 2200 MW of electricity which they were designed to accommodate.

Q. DOES THE POSSIBLE FUTURE GENERATION BY SANTEE COOPER JUSTIFY FORCING RATEPAYERS TO PAY FOR THE TRANSMISSION EXPANSION?

A. No, Mr. Parker (and Mr. Whiteley for that matter), seek to justify the recovery of the transmission costs, without the need for the 2200 MW of additional capacity, based on potential retirements in the DESC/Santee Cooper system. Parker Rebuttal page 6, ll. 7-14. Mr. Parker testifies about the possible future of generation and of Santee Cooper. In this area he lays out possible scenarios that would justify a massive transmission investment that would include plant closures and a need to use the transmission system more than it normally has been as a means of bulk power transfer to compensate for possible plant closures.

One prime example he uses is that the Winyah Coal Plant which provides 1150 MW of power (over 1 GW) could be retired in the "not too distant future." Id. This may or may not be true and is subject to a number of variables including but not limited to national politics and policies, local politics and polices and the ultimate direction and disposition of Santee Cooper who as the plant owner will make any such decision.

The witness goes on to discuss various Low Country generation issues including plant closures, but again, this is all the purest form of speculation. As of today, none of those possible plant closures have been announced or occurred. In fact, the future of Santee

Cooper is far from certain. As such, the benefit to the ratepayer is undefined, and again, in today's reality minimal if at all based on the reality we know today.

Q. DO YOU AGREE WITH MR. PARKER WHEN HE TESTIFES THAT THE FULL CAPACITY OF THE VCS1 – KILLIAN 230 KV LINE WAS NECESSARY TO RELIEVE CONGESTION IN THE I-77 CORRIDOR?

A. No. Mr. Parker testifies that the VCS1 – Killian 230 kV line was totally necessary to relieve load in the I-77 area. Parker Rebuttal, pages 9- 12. He purports to show that the line was rerouted to provide relief for the transmission system in that growing area back as early as 2008. He disputes the 25% cost allocation. Parker Rebuttal, page 11, ll. 7-12. However, his testimony contradicts the original planning justification for this reroute which plainly states that 74.2% of the cost of this line was attributable to bulk power transfer from the nuclear plants to the Columbia load center. Parker Rebuttal page 11, l. 13 – page 13, l. 2

The Commission should note that Mr. Young testified as follows in Docket 2008-196-E:

> The estimated cost for the line as originally routed is 74.2% of the estimated cost of the rerouted line and SCE&G is proposing to treat only this portion as the cost of interconnecting the nuclear project. SCE&G anticipates that it would seek recovery of the remaining 25.8% of the costs in a future general rate proceeding.

See Exhibit 1 of my Direct Testimony (Young Direct page 15, l. 22 – page 16, l. 5). While Mr. Parker argues that 100% of the cost allocation is now for relief in the I-77 area, he is correct only because the VC Summer plants were never constructed.

Q. IS THE FULL CAPACITY OF THE VCS1 – KILLIAN 230 KV LINE NEEDED TO RELIEVE CONGESTION IN THE I-77 CORRIDOR?

A. No. The 230 kV Killian Line from VCS1 does little to alleviate load growth in Columbia. The congestion in the I-77 corridor was and is a strictly local issue and the planned reroute of the line takes that into account by allocating 25.8% of the cost of this line for the relief of this local congestion as I have testified. However, with the main driver of the entire project no longer viable, it makes it now a very expensive fix for a local problem. Absent the transmission needs required by the construction of the VC Summer plants, it is highly unlikely that SCE&G would have constructed a transmission expansion on the scale of the project now in service to resolve a problem of load growth and transmission capacity in the area. It is probable that upgrading existing transmission assets with larger conductors or even multi-circuits utilizing the existing right of way or expansion/perfection of that right of way would have been recommended since those projects would be less costly and could be in service much more quickly than a line from VCSN to this area which required totally new rights of way and permitting.

Q. DO YOU AGREE WITH MR. PARKER' SUGGESTION THAT FUTURE SOLAR EXPANSION JUSTIFIES ALLLOWING DESC TO RECOVER ITS TRANSMISSION EXPANSION COSTS FROM RATEPAYERS?

A. No. The witness talks about how attractive the area in certain parts of the state (primarily the area between Charleston and Columbia) is to solar developers because of these upgrades. Parker Rebuttal, page 13, l. 14 – p. 14, l. 17. First, the potential for solar development was never considered as a justification for the transmission expansion until Mr. Parker's testimony filed in this docket. While there may be potential for solar development along the transmission lines in question, Mr. Parker provides no evidence of

any actual benefit to the ratepayers. For instance, with solar development there is an economic development opportunity for solar developers and landowners, and for counties to have an expanded tax base. The extent to which solar development benefits ratepayers is unknown and on this record, do not justify granting DESC authority to recover the transmission expansion costs in rates.

Q. DO YOU AGREE WITH MR. PARKER'S TESTIMONY THAT THE TRANSMISSION EXPANSION AVOIDS NERC COMPLIANCE ISSUES, JUSTIFYING RECOVERY OF THE TRANSMISSION EXPANSION?

A. No. Mr. Parker's explanation of DESC's transmission planning criteria is consistent with the discussion of the transmission planning criteria set out in the testimony of Mr. Young in 2008 as well as SCE&G's 2000-2008 planning criteria. Parker Rebuttal pages 16-18. Mr. Parker testifies that potential future loading constraints and NERC violations are avoided by the expansion. He goes so far as to testify about the miles of overload that would occur if the transmission expansion was not in place. However, it appears that these overloads are of a local nature and without the VC Summer expansion, the upgrades to address congestion are unnecessarily costly. As with the I-77 congestion I have discussed, the potential for overloads would have been better remedied with lower cost local upgrades that would have required less time to construct and have had a more limited environmental impact. Absent the construction of the VC Summer nuclear plants, there would have been no justification for the massive transmission expansion that was undertaken to deliver bulk power as its primary function.

Q. DO YOU AGREE WITH MR. PARKER'S TESTIMONY THAT LOAD PROJECTIONS JUSTIFY ALLOWING DESC TO PUT THE TRANSMISSION EXPANSION IN RATES?

A No. Mr. Parker testifies that load projections from 2018 -2028 were the load horizon used to do transmission planning. Parker Rebuttal page 17, ll. 5-11. SCE&G's load projections have proven to be inaccurate. The Commission need look no further than the fact that after construction of 2200 MW of generation was abandoned in 2017, DESC determined that it did not need the additional generation provided by these very large base load generators, opting instead to purchase a natural gas generator from Columbia Energy rated at 540 MW. Parker Rebuttal, page 7, l. 19 – p. 8, l. 3. Moreover, given the changing patterns and levels of energy usage as well as the economic impact of the Covid-19 pandemic, it is unlikely that any of these projections are remotely valid any longer. Mr. Parker forces the assumption that DESC will be in violation of any standards he references now or in the future. However, we can only speculate if and when those issues may arise. As I have testified, it is unlikely anything approaching full and justifiable benefit from these projects will be delivered for a decade.

Q. DO YOU AGREE WITH MR. PARKER'S EXPLANATION THAT OTHER DESC GENERATORS USING THE TRANSMISSION LINES JUSTIFIES ALLOWING DESC TO PUT THETRANSMISSIN EXPANSION IN RATES?

A. No. Mr. Parker's Table 1 on page 20 of his rebuttal testimony reflects outflow from existing generators to justify recovery of the transmission expansion in rates. However, his testimony demonstrates a minimal shift in generator output flow onto the

expanded transmission lines. Again, utilization is an issue here. While there is some shift, it is minimal based on modeling at present. Mr. Parker acknowledges that the utilization of these lines is not benchmarked, making it difficult, if not impossible, to determine the extent to which the transmission expansion is used and useful. Parker Rebuttal page 21, ll. 17-19.

Q. DO YOU AGREE WITH MR. PARKER THAT DESC IS EXPERIENCING UNACCEPTABLE LOADING?

A. No. Mr. Parker's testimony is somewhat confusing on this point. For instance, while he testifies that DESC considers a 90% planning threshold, he testifies that running lines at 70-80% loading is unreliable. Parker Rebuttal, page22, l. 16 – p. 23, l.16.

Any transmission asset, especially at the bulk power level, must be sized and operated to provide reliable service at peak demand time. The peak demand time is generally about 3-4 hours in summer and winter. The summer peak is generally from 2-6 pm on weekdays and the winter peak is from 6am – 9am. The only time these networks would be carrying 70% of capacity is during the peaks.[1] And again, current loading trends and changes should be revaluated to assess system reliability and capability. With the very low, nominal utilization we are seeing, there is no doubt the system with the expansion is capable of handling all of these conditions. A good acceptable operational rule is that we size a

1 In a very difficult emergency, we see lines loaded up to 125% capacity. While there are obvious risks to loading a line up to 125%, these emergency measures must be limited to prevent damage occurring. The same is true for transformers which can routinely take such overloading and often do.

transmission line to be operational with a 20% margin at peak time. An optimal loading criterion in normal times is approximately 40%. This loading criteria allows a load of up to 80% during peak or emergency situations while still operating with a 20% margin and maintaining system reliability.

These planning criteria are reflected in the system planning and operational issues mentioned in all the DESC/SCE&G testimony. We see from Mr. Parker's testimony where he references operating lines at 70%-80% capacity as being a difficult proposition. In fact, operating at a 70%-80% load often occurs, and more typically on local lines as opposed to major bulk power lines. Addressing Mr. Parker's testimony about the 90% planning thresholds, these assets can be operated for periods of time well beyond their base rating. The point is not that these transmission assets should be operated beyond their base rating, but that the planning horizon here is also based on peak demand and reliability worst case issues, not nominal system operations.

Q. ARE THE TRASMISSION LINES AND OTHER ASSETS FULLY UTILIZED?

A. No. The transmission expansion here was designed and constructed to accommodate power flow from the VCSN plant expansion and affects DESC's entire system. Mr. Parker testifies DESC uses a 90% peak loading threshold as a planning horizon for possible system upgrading. With utilization rates set out in Mr. Seaman-Huynh's analysis not even getting to 20%, we can see where the actual system benefits are at least a decade in the future. See Seaman-Huynh Direct at p.17, l. 21 – page 21, .7. I

would not recommend that the entire system be operated and/or designed for operation at high percentages of capacity such as 70-80%. With utilization rates well below 20% across the board it is obvious that the lines constructed in the expansion, without the VCSN plants in service, are extremely underutilized and provide at this time limited benefit to the ratepayers. Burdening ratepayers with the full cost of the transmission expansion today is not justified since the principal reason for constructing the transmission expansion no longer exists.

Q. DO YOU AGREE THAT MONDERNIZING DESC'S TRANSMISISON SYSTEM JUSTIFIES ALLOWING DESC TO PUT THE TRANSMISSION EXPANSION IN RATES?

A. No. Upgrading existing transmission facilities with modern construction such as steel poles and larger conductors acts to improve the facilities, but not improve capacity. See Parker Rebuttal, page 29, ll. 3-7. If DESC's goal was to upgrade the existing transmission system to provide more capacity and better reliability, simply upgrading the lines in place and uprating conductors for expanded thermal capacity and deployment of new poles would have been a far less expensive and time-consuming endeavor. It is likely the case that this would have solved any overloading problems and potential reliability issues for the foreseeable future. However, DESC seeks to justify a much more expensive transmission expansion today than necessary because of the expansion of VCSN which did not happen. As such the system expansion represents very expensive costs for very minimal benefit to the ratepayer presently. DESC has failed to prove the extent to which the

transmission expansion costs are used and useful justifying including any of these costs in rates.

Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?

A. Yes.